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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/644,667	08/24/2000	Luis Felipe Cabrera	MSFT-0160/142385.1	5398

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EXAMINER
ALI, MOHAMMAD

ART UNIT	PAPER NUMBER
2177	12

DATE MAILED: 02/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 December 2003*.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-45* is/are pending in the application.
   4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-45* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
         application from the International Bureau (PCT Rule 17.2(a)).
   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This communication is responsive to the Amendment filed on December 02,

2003.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of

the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

3. Claims 1-8, 12-13, 16, 21-23, 27-35, and 39 are rejected under 35 U.S.C. 103(a)

as being unpatentable over Ofek et al. (U.S. Patent 6,385,706) and Coy et al. (U.S.

Patent 5,644,766).

Ofek teaches independent claim 1 by the following: "identifying at least one portion of the stream of data for migration to the second storage location" at col. 9 lines 54 to col. 10 line 20. Ofek teaches that the updated data blocks are identified and transmitted [migrated] in order to update the backup copies. The identification of at least one portion of the stream of data could also include migration of the entire file [all portions of the stream of data are migrated]. As for the migration aspect of the claim, Ofek teaches that the secondary storage node could serve as a hierarchical storage management at col. 41 lines 15-18. The hierarchical storage management is a form of migrating data to a slower access medium. The data is moved in order to create more space for other objects that would benefit from being stored on the quicker access mediums [the primary source location in the case of an hierarchical storage management system (HSM)].

"migrating said at least one portion to said second storage location, wherein said migrating includes" at col. 9 lines 16-24. Ofek teaches that the data can be transferred [migrating in terms of the HSM described at col. 41 lines 15-18] from a primary location to a secondary storage node [location].

"(B) generating additional file system metadata relating to said stream of data" at col. 24 lines I -28. Addition file system metadata is created for the blocks of data. The metadata re-maps the data blocks [stream of data] in order to recombine the blocks to recreate the original file. "preserving said stream's data relationships via said additional file system metadata" at col. 24 lines 1-28. Ofek teaches two metadata tables that are needed to restore the data. The abstract block table describes the migration locations of

the data. The dummy metadata table describes the location of where the new

information will be stored. The combination of the two tables creates a re-mapping table

that describes how to restore the file.

Coy teaches the remaining aspects of independent claim 1 by the following: "(A)

relocating said at least one portion from the first storage location to the second location"

at col. 1 line 65 to col. 2 line 5. The data is migrated [relocated] in order to free storage

space for more information. "whereby said entire stream of data remains accessible to a

user of the file system as if said at least one portion of the stream of data were not

migrated according to said migrating" at col. 1 lines 25-28. The data is archived [stored

in a different location] in order to free valuable storage space on the workstation. The

user can continue to retrieve [access] the data that has been archived [migrated away

from the workstation] as if it was not migrated. Because the user can continue to access

the data, the data can be accessed as if it was not migrated.

Ofek does teach the use of his backup system as a Hierarchical Management

system at col. 41 lines 15-18, but he does not specifically state that the data items are

actually relocated to a different location. Ofek teaches a backing up of the data (the data

is copied to a different location, so two copies of the data remain). Coy does teach an

invention in which the data is relocated to a second storage location in a hierarchical

storage system as taught in the title and at col. 3 lines 40-5 1. It would have been

obvious to one ordinarily skilled in the art at the time of the invention to allow the system

to move data to a second location. By relocating the data, duplicate copies of the

information will not be stored. More storage space will be made available to store

additional data, and the data that has been migrated will remain available to the system

because of the use of the second storage location.

Ofek teaches dependent claim 2 by the following: "first storage location and said

second storage location are located on different volumes" at Fig. 2A.

Ofek teaches dependent claim 3 by the following: "identifying of said at least one

portion for migration includes identifying said at least one portion according to pre-set

criteria" at col. 29 lines 10-14.

Ofek teaches dependent claim 4 by the following: "identifying of said at least one

portion for migration includes specifying the size of an archive unit" at col. 30 lines

14-25.

Ofek teaches dependent claim 5 by the following:

"identifying of said at least one portion for migration includes specifying the size of a

region of updates" at col. 31 lines 33-54.

Ofek teaches dependent claim 6 by the following: "identifying of said at least one

portion for migration includes specifying a memory allocation limit for the stream of data

applicable to said first storage location" at col. 36 line 30.

Ofek teaches dependent claim 7 by the following: "moving of said at least one

portion is performed without exceeding said memory allocation limit" at col. 36 lines

30-38.

Ofek teaches dependent claim 8 by the following: "the stream of data has at least

one identifiable region of updates" at col. 29 lines 33-36.

Ofek teaches dependent claims 12 and 39 by the following: "said second [target]

storage location is a sequential access medium (SAM)" at col. 34 lines 4756.

Ofek teaches dependent claim 13 by the following: "said first storage location is a

local location and said second storage location is a remote location" at Fig. 5.

Ofek teaches dependent claim 16 by the following: "said preserving the data

relationships of said stream includes generating metadata for description of said

relationships" at col. 9 lines 49-53.

Ofek teaches dependent claim 21 by the following: "A computer-readable

medium having computer-executable instructions for instructing a computer to perform

the method recited in claim 1" at col. 37 lines 53-58.

Ofek and Coy teach independent 22 by the following: "wherein said migration

includes relocation of the at least one portion from the first storage location to the

second location" at Coy col. 1 line 65 to col. 2 line 5. The data is migrated [relocated] in

order to free storage space for more information. "generation of additional file system

metadata relating to the stream of data" at Ofek col. 24 lines 1-28. The metadata tables

are generated in order to re-map the blocks [streams]. "an identifier identifying the

stream of data for which at least one portion is migrated" at Ofek col. 21 lines 51-59.

Ofek teaches that each block [a stream of data] is archived [migrated according to the

HSM] to the second location. The metadata table includes labels [identifier] to identify

each block. The mapping tables include both the label and the physical address of the

block's [stream of data] location in order to identify the location of each block. "data

representative of the storage service used in connection with the migration of said at

least one portion" at Ofek col. 21 lines 59-67. The data representative of the storage

service is read in order to determine the location of the blocks of data. "data

representative of the memory mappings of said at least one migrated portion" at Ofek

Fig. 13 and col. 21 lines 47-50. Because the metadata is able to reconstruct the order of

the logical data blocks as they appear in the logical object, the metadata is

representative of the memory mappings. "whereby said entire stream of data remains

accessible to a user of the file system as if said at least one portion of the stream of

data were not migrated" at Coy col. 1 lines 25-28. The data is archived [stored in a

different location] in order to free valuable storage space on the workstation. The user

can continue to retrieve [access] the data that has been archived [migrated away from

the workstation] as if it was not migrated. Because the user can continue to access the

data, the data can be accessed as if it was not migrated.

Coy teaches dependent claim 23 by the following: "further comprising temporal

data relating to a time of migration of said at least one portion of said stream of data" at

col. 4 lines 57-66.

Ofek teaches dependent claim 27 by the following: "A modulated data signal for

carrying information that encodes a data structure as recited in claim 22" at col. 34 lines

10-42.

Ofek teaches dependent claim 28 by the following: "An application programming

interface (API) for use in a computer system, whereby a stream of data may register for

administration for partial migration techniques according to the method of claim 1" at

col. 18 lines 17-29.

Ofek teaches dependent claim 29 by the following: "An API according to claim

28, whereby said interface provides a common way to generate and store metadata in

connection with the partial migration of streams of data to secondary storage" at col. 18

lines 18-2 1, col. 20 lines 47-5 1, and col. 22 lines 15-33. 20.

Ofek and Coy teach dependent claim 30 by the following: "a hierarchical storage

management (HSM) system for administering a stream of data for partial migration" at

Ofek col. 14 lines 60 to col. 15 line 2. Ofek teaches the transfer of data from a primary

storage node to a secondary node. Ofek also teaches that the secondary node could be

part of a HSM, inferring that the data is migrated to the second location in order to free

space on the primary or source location. 4ca source storage location having a stream of

data stored thereon being serviced by said HSM system" at col. 14 lines 60 to col. 15

line 2. The second location can be used as part of a HSM. Because the data is

transferred to the second location, the source storage is being serviced by an HSM

system. "wherein said HSM system identifies and migrates at least one portion of said

stream of data to a target storage location according to pre-set criteria" at col. 22 lines

57-63 and col. 29 lines 10-14. Ofek teaches a differential backup in which only a portion

of the object is needed for backup. The pre-set criteria are that the object has changed.

As for the migration aspect of the claim, Ofek teaches that the secondary storage node

cold serve as a hierarchical storage management at col. 41 lines 15-18. The

hierarchical storage management is a form of migrating data to a slower access

medium. The data is moved in order to create more space for other objects that would

benefit from being stored on the quicker access mediums. "generates metadata for the

description of data relationships of said at least one migrated portion" at Ofek col. 24

lines 1-28. The metadata tables are generated in order to re-map the blocks [streams]

after they have been moved. "wherein said migrating means to relocate the at least one

portion from the first storage location to the second location" at Coy col. 1 line 65 to col.

2 line 5. The data is migrated [relocated] in order to free storage space for more

information.

"whereby said entire stream of data remains accessible to a user of the file

system as if said at one portion of the stream of data were not migrated according to

said migrating" at col. 1 25-28. The data is archived [stored in a different location] in

order to free valuable storage on the workstation. The user can continue to retrieve

[access] the data that has been ied [migrated away from the workstation] as if it was not

migrated. Because the user can iue to access the data, the data can be accessed as if it

was not migrated.

Ofek teaches dependent claim 31 by the following: rein the HSM system

specifies the size of an archive unit" at col. 30 lines 14-25.

Ofek teaches dependent claim 32 by the following: rein the HSM system

specifies the size of a region of updates" at col. 31 lines 33-54.

Ofek teaches dependent claim 33 by the following: rein the HSM system

specifies a memory allocation limit for the stream of data applicable d source storage

location" at col. 36 line 30.

Ofek teaches dependent claim 34 by the following: rein the HSM system moves

at least one portion of the stream of data such that said)ry allocation limit is not

exceeded" at col. 36 lines 30-38.

Ofek teaches dependent claim 35 by the following: rein the HSM system

identifies a stream of data that has at least one identifiable region of es" at col. 29 lines

33-36.

4. Claims 9-11 and 36-38 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Ofek et al. (U.S. Patent 6,385,706) and Coy et al. (U.S. Patent

5,644,766) as applied to claim 1 above, and further in view of Barve et al. ("A Simple

and Efficient Parallel Disk Mergesort").

Ofek teaches a form of migrating information from one source to another through

the use of streams at col. 34 lines 57-65 and col. 35 lines 6-7. Ofek does not teach any

form of identifying the type of data stream. Barve does identify these types of data

streams at pg. 234235. It would be obvious to one ordinarily skilled in the art at the time

of the invention to identify these types of data streams. By identifying the streams, the

data can be stored in a more efficient manner. Because of the increase of processor

speeds, the bottleneck has now become disk access, or the time to read data from

memory. By organizing the data, it can be read faster thus allowing faster run times.

Barve teaches dependent claims 9 and 36 by the following: "wherein said

identifying of said at least one portion for migration includes identifying a type of stream

of data" at pg. 235.

Barve teaches dependent claims 10 and 37 by the following: "said type of stream

of data is an append-only file" at pg. 235.

Barve teaches dependent claims 11 and 38 by the following: "said type of stream

of data is a first storage block write only file" at pg. 235.

5.   Claims 14 and 41 are rejected under 3 5 U. S.C. 103 (a) as being unpatentable

over Ofek et al. (U.S. Patent 6,385,706) and Coy et al. (U.S. Patent 5,644,766) as

applied to claim 1 above, and further in view of Boebert et al. (U.S. Patent 5,864,863).

As per claims 14 and 41, Ofek teaches a hierarchical storage management

stored across several nodes. He does not teach that the data is stored from a

nonsecure site to a secure site. Boebert teaches this type of security in Fig. 12. It would

be obvious to one ordinarily skilled in the art at the time of the invention to use this type

of security. The information that is stored is valuable to its users. Enforcing security

does not allow access to hackers or others who may cause harm when given access to

the data. Adding security ensures that only those who have privileges can access the

data.

6.   Claims 15 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Ofek et al. (U.S. Patent 6,385,706) and Coy et al. (U.S. Patent 5,644,766) as

applied to claim 1 above, and further in view of Sawada (U.S. Patent 5,784,646).

As per claims 15 and 40, Ofek teaches a hierarchical storage management

stored across several storage nodes. He does not teach that the data streams move

from an on-line location to an off-line location. Sawada teaches this type of storage in

Fig. 7. It would be obvious to one ordinarily skilled in the art at the time of the invention

to move data from online storage to offline storage. By moving data to offline storage,

more online storage is made available, thus freeing online resources.

7. Claims 17, 24, and 42 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Ofek et al. (U.S. Patent 6,385,706) and Coy et al. (U.S. Patent

5,644,766) as applied to claim 1 above, and further in view of Usdin et al. ("XML: Not a

Silver Bullet, But a Great Pipe Wrench").

As per claims 17, 24, and 42, Ofek teaches that metadata stores the

relationships of data in his hierarchical storage system. He does not teach that the

metadata is formatted through World Wide Web components. Usdin teaches this feature

on pg. 125. Usdin also teaches that XML can be used to process metadata at pg. 129. It

would be obvious to one ordinarily skilled in the art at the time of the invention to use

World Wide Web components to with the metadata. By using a World Wide Web

component, the metadata can provide interoperability between applications that

exchange machine-understandable information on the Web.

8. Claims 18, 25, and 43 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Ofek et al. (U.S. Patent 6,385,706) and Coy et al. (U.S. Patent

5,644,766) as applied to claim 1 above, and further in view of Glebov et al. (U.S. Patent

6,34:'),265). 38. As per claims 18, 25, and 43, Ofek teaches a method of storing data to

a map of storage locations found across a network at Fig. 5 and col. 6 lines 21-22. He

does not teach that the metadata is formatted according to XML, DCOM, or Java.

Glebov does teach the use of formatting data relations with XML at col. 4 lines 51-67. It

would be obvious to one ordinarily skilled in the art at the time of the invention to use

XML to access the metadata. XML is a common format used to model metadata. It

allows the metadata to be shared across several different machines.

9. Claims 19-20 and 44-45 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Ofek et al. (U.S. Patent 6,385,706) and Coy et al. (U.S. Patent

5,644,766) 1 as applied to claim 1 above, and further in view of Lam (U.S. Patent

5,564,037).

Ofek teaches a method of storing data to a map of storage locations. Ofek

teaches that this method could be used in a hierarchical storage management at c6l. 14

lines 60-63. He does not teach the data migration details that are a part of hierarchical

storage management. Lam does teach these details at col. 1 lines 44-66. It would be

obvious to one ordinarily skilled in the art at the time of the invention to use data

migration. By migrating data, which is infrequently used or accessed, space can be

freed on the file server. Data migration allows for a more efficient method of storing files.

Those files that are accessed frequently remain on faster accessed storage, while the

less frequently accessed files are moved to slower storage.

Lam teaches dependent claims 19 and 44 by the following: "the storage for said

at least one portion in said first storage location is freed for use by the system after said

at least one portion is moved to said second storage location" at col. 1 lines 61 -64.

42. Lam teaches dependent claims 20 and 45 by the following: "said stream of data is a

sparse file" at col. 3 lines 30-40.

10. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ofek et

al. (U.S.Patent 6,385,706) and Coy et al. (U.S. Patent 5,644,766) as applied to claim 1

above, and further in view of Salas et al. (U.S. Patent 6,233,600).

As per claim 26, Ofek teaches that metadata stores the data relationships at col.

11 lines 58-60. He does not teach that the metadata is stored in a jet database. Salas

does teach the use of a jet database to store the relationships between data at col. 4

lines 28-32 and col. 13 lines 3-6.

It would be obvious to one ordinarily skilled in the art at the time of the invention

to use a jet database to store the data relationships. A jet database is a commonly used

database. By storing metadata in a jet database, the system can query this database to

obtain the needed information. The metadata can then be used to access to the data

found in storage.

Conclusion

11. Applicant's argue that prior art of record does not teaches or suggests "a file

system that provides a partial migration capability, wherein part(s) of a file can be

moved from a first memory location to a second memory location,....".

The Examiner respectfully submits that Ofek teaches this limitation as the

updated data blocks are identified and transmitted [migrated] in order to update the

backup copies. The identification of at least one portion of the stream of data could also

include migration of the entire file [all portions of the stream of data are migrated]. As for

the migration aspect of the claim, Ofek teaches that the secondary storage node could

serve as a hierarchical storage management at col. 41 lines 15-18. The hierarchical

storage management is a form of migrating data to a slower access medium. The data

is moved in order to create more space for other objects that would benefit from being

stored on the quicker access mediums [the primary source location in the case of an

hierarchical storage management system (HSM). The data can be transferred

[migrating in terms of the HSM terms] from a primary location to a secondary storage

node [location].

Applicant's argue that prior art of record does not teaches or suggests "migrating a portion of a stream data having associated file system metadata from a first storage location to a second storage location".

The Examiner respectfully submits that Ofek teaches this limitation as the data is archived [stored in a different location] in order to free valuable storage space on the workstation. The user can continue to retrieve [access] the data that has been archived [migrated away from the workstation] as if it was not migrated. Because the user can continue to access the data, the data can be accessed as if it was not migrated, at col. 1 lines 25-28

Contact Information

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammad Ali whose telephone number is (703) 605-4356. The examiner can normally be reached on Monday to Thursday from 7:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on (703) 305-9790 or Customer Service (703) 306-5631. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306 for any communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-9600.

Mohammad Ali

Patent Examiner

AU 2177

MA

February 03, 2004